

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

VOL. XCIX. — THURSDAY, SEPTEMBER 5, 1878. — NO. 10.

CONCERNING CORONERS AND THE THEORY AND PRACTICE OF INQUESTS.¹

BY THEODORE H. TYNDALE.

RETURNING now to our starting-point, let us follow this line together.

THE SOLE PURPOSE OF AN INQUEST IS THE DETECTION OF CRIME.

That being its object, what is the process of conducting it?

A body is found dead under circumstances indicating that violence may have caused the death. The whole question to be determined is, Has a crime been committed? This question resolves itself into two others: First, Has the death been caused by violence? and second, Does that violence constitute a crime? The solution of the one is your business, the answering of the other is the business of the courts. The first is determined by a physical examination, the second by hearing sworn testimony to the facts, and applying the law to them. *Is there violence?* that is the medical question; *Is it criminal?* that is the legal question.

When a dead body is found, not infrequently it will happen that there is in the first instance no suspicion of violence. It will happen that the cause is wholly unknown; that the persons who find the body know nothing more than that here is a body found dead, or that they have seen some one suddenly die, but the cause they neither know nor have any ground to suspect. It is this class of cases that gives rise to one of the questions I wish to discuss with you. They will often be found not to require an inquest, and such cases are finished with the view.

But since violence *may* have caused the death in any such case, and since the persons, often ignorant, that find the body naturally turn to an authorized official to report the case, and considering the paramount importance attached by the State to everything that concerns human life, the view should always be held and never declined. No death, the reason of which is not clearly known, should be permitted to pass unnoticed, or the reason of it left to inference. Some responsible and competent person should in every case satisfy himself that the death is

¹ Concluded from page 272.

not a subject for further inquiry. Neither should the examiner ever be content to decline to see a body because the story told him seems to make it clear that it is a death by natural means. The State has entrusted to his judgment an important step in its most important interests, and to decline to exercise his own faculties, and to make up his judgment on unverified hearsay, would be to be faithless to his trust, and to betray the grave charge committed to him.

You cannot expect to be free from insufficient understanding and misconstruction of the law by others. While, therefore, you will often find that the death was not violent, but natural, it is nevertheless imperative that the view should be held.

As before stated, the question, Was the death caused by violence? is answered by a physical examination. Incidentally, however, some "personal inquiry," as the law terms it, will frequently greatly assist you in answering this question. Information as to previous condition, surroundings, habits, circumstances under which the deceased was last seen, will materially assist the medical examiner in his investigation.

For instance, a body is found on the seashore. The examiner learns this fact from bystanders or neighbors. The body is dressed in ordinary sailor costume. A storm has recently been raging along the coast, and portions of wrecks are cast upon the beach. The man is a stranger, whose face is not known in the neighborhood; there are no marks or tracks in the sands indicating that the body was brought there by others. These external facts being ascertained by inquiry, the medical examiner will have little question that this was a death by the perils of the sea. He is, therefore, also to seek by inquiry to gain such information as will enable him correctly to reach a conclusion. But he must be careful to use such information only to assist him in answering *his* question, "Was the death violent?" and on no account to go beyond this limit and attempt to determine who was guilty of the violence, whether it was criminal violence, or what degree of crime it amounts to. With this qualification, if the appearance of marks, or wounds, or the indications of the body point to the conclusion in his mind, as a scientific expert, that the violence was self-inflicted, he is unquestionably bound to state that fact carefully. This, however, will be seen to be not an exception but rather a confirmation of the rule above laid down, that the examiner is not to go into the inquiry, Was the violence criminal? suicide not being punishable as a crime. In death by hanging, certain indications assist the determination of the question whether the deceased was hung after death or during his life. The abrasions or ecchymoses may often indicate by their location whether the suspension was by the victim's own hands. In cases of death by incised wounds, the direction, and in the case of feeble persons the force, of the cut or blow may point clearly to self-infliction.

In cases of death by poison, certain appearances about the mouth may assist in establishing whether it was administered by the deceased. In these and a thousand similar cases it is unquestionably the duty of the medical examiner to give his opinion, as a scientific inference, whether the body indicates death by suicide or not; but this so far only as it is indicated by the visible facts, or the well-authenticated scientific deductions from these.

Who did it, if another, and under what circumstances or what provocation? these questions the medical examiner must carefully abstain from considering. They are not his province, and indeed *he has not the means of solving them*. They are to be answered by the sworn testimony of others to facts not in themselves apparent. As he cannot even administer an oath to a witness, how can he hear sworn testimony? What he has not the means of ascertaining, how can he determine?

It being the purpose of an inquest to detect crime, in order that the criminal may be punished, it follows that where no one is to be punished no inquest is necessary. Unless, therefore, another's act may have caused or contributed to the death, there is no occasion to hold an inquest. Violence may take place without human coöperation. Deaths by drowning or falling are violent, but if they do not involve the act of another, it is perfectly apparent that such deaths are not violent within the meaning of the law. An inquiry designed only to aid in the detection and punishment of crime is needless where no crime has been committed. And if another's act did not contribute to the death, there was no crime, and there is consequently nobody to punish. It is clear, therefore, that the violence contemplated by the inquest law is *violence caused or contributed to by another*. Although not usually involving the act of another, it is nevertheless necessary always to submit cases of suicide to inquest, because on the one hand the physical indications may not be alone sufficient to place the fact of suicide beyond a doubt, and because on the other, even in cases of undoubted self-destruction, another's criminal act may have incited to it, and as this involves the hearing of evidence it must of course go to the court. The purpose of the inquest in such cases will be to discover whether another's act contributed to the self-inflicted violence. In all respects, therefore, the violence contemplated by the theory and the law of inquests is *violence caused or contributed to by another*. Violence in this sense, however, is not necessarily physical force applied to the victim. The leaving exposed of dangerous substances or weapons, counseling another to commit suicide, the administering of poison, yes, even acts of mere omission, such as failing to let a child or feeble person receive sufficient nourishment, building a structure so recklessly as to endanger life,—all these are, or may be, acts of violence in the contemplation of the law. The first thing required by the law is that the medical exam-

iner shall *take charge* of the body, and this in order, first, that its examination may furnish all the evidence to be obtained from itself, its appearances and indications; and, second, that it may not by any possible chance be tampered with, and the evidence of crime concealed or destroyed. To *take and keep charge* of the body is therefore of the highest importance to attain the ends of justice. That this will not always be acceptable to friends and relatives, and will sometimes be vehemently objected to, is a matter of course, and of no importance. The State's business must override the preference of individuals. The interest being important enough for the State to make it its own, all private interests must yield.

Objection may also be made that to take charge of the body will be unnecessary in many cases, as of evident accident not involving another's act, and where there are friends of the deceased at hand. The answer to this is that such cases end with the view, and the medical examiner has then no further *charge*. In all cases that do go further than a view, they do so because a crime may have been committed, and it is of the greatest consequence to retain charge, as before stated. Under the law the inquiry is to be into the *cause and manner* of the death. It is not enough to state in the report the immediate proximate *cause* of death, and nothing more, as, when a man bleeds to death from a cut, to say that he died of hæmorrhage, without the addition of the likewise medical fact that the hæmorrhage was from an incised wound, that the wound was made by a knife or edged tool, if that fact can be ascertained, and that the indications (if such be the case) point to its self-infliction or otherwise. Cause is one thing, *manner* another, and the object of the law, as well as its language, requires both to be ascertained and reported.

With the remaining question, if violence is found to have been committed, whether that violence constitutes a crime, and what crime, the medical examiner, as has been said, is happily not concerned.

Was it an accident to which, although another's act caused or contributed to it, the law attaches no blame? Was it an act of justifiable self-defense? Was it an assault, manslaughter, or murder? These grave and intricate questions the medical examiner is exempt from considering and deciding. These, together with questions relating to the admissibility of evidence, are as much matters of law as the sentence passed upon a convicted person. They are purely and solely for the court.

The medical examiner's business, as such, is finished with his report. He will, if it be a case of violence proceeding from another, be called upon to testify as a witness at the hearing and subsequent trial; but he is merely a witness, and has nothing further to investigate or decide. He has made the examination and determined the fact of vio-

lence, and now it remains for the court to establish whether the violence is or is not criminal.

Whether the courts, for want of evidence or other causes, do or do not proceed with their part of the matter, the examiner will nevertheless always do his duty, and never be discouraged or deterred from doing it by the fact that the other branch of the inquiry does not reach a satisfactory conclusion, or indeed any result at all. His line of duty is clear; his duties and the court's are distinct, independent of, and coequal in importance and value with, each other.

Having performed his duty, he is not called upon to shoulder the responsibility of the other's work also. Questions of evidence, of accident, of self-defense, of degrees of crime, these are not for him to decide. To repeat, then, "Whether a given death result from natural causes or not, so far as the body indicates, the physician's examination is competent, and alone competent, to decide; whether, the fact of violence being established by such examination, that violence constitutes a crime, and if so, what crime, the testimony of witnesses to external facts, and the law applied to those facts, alone can determine. In technical language, whether a homicide has been committed or not is a medical question; whether that homicide be the result of accident, or be justifiable homicide, or manslaughter, or murder, is a legal question." These words were written before the passage of the present law; indeed, they formed the criterion and basis of the division of functions in the new law. In other words, again, with a view to determining whether a death was one by violence caused or contributed to by another, the physical examination, supplemented by such inquiry as will assist his determination of that question, — this is the examiner's business, and his *alone*. With a view to determining whether that violence is criminal or not, and if criminal, in what degree, the hearing of sworn testimony, passing upon its admissibility, and laying down the law, — this is the judge's business, and *his* alone. Neither can and neither should attempt to make a decision, or do anything whatever, which will in any degree interfere with the business of the other. The medical examiner, therefore, is not called upon to decide the question whether or not the violence was *criminal*; he cannot and never ought to do this.

The very purpose and foundation stone of the new law is to divide into its several constituent elements the work involved in the inquiry. Neither is, henceforth, ever again to be confused or mixed with the other. Each is the distinct and separate function of a distinct and different official. We are to remember, then, that the *inquest* is to be held by the court, — it is the *inquiry* into the facts outside the body; the *examination* is to be made by the examiner, and it leads the way to the inquest.

However difficult the solution of questions arising under the law may

seem, it may be readily found by reference to the principle involved; the principles of the law are simple and well-defined. Its purpose is the detection of crime; its method, the division of functions among those properly qualified to perform them.

If I have dwelt upon this with too great insistence, and at the risk of being wearisome, you must forget it in the consideration that it is the corner-stone of the new edifice, and however imperfect as yet may be the superstructure, it must always rest upon this simple doctrine: that to get work efficiently done, states and nations, like individuals, must employ those whose proper employment it is and who are qualified to do it.

Undoubtedly improvements are desirable in the future, such as returning a body to the county where the deed happened, where the evidence is to be sought for, and where the superior court proceedings must be had, for the medical examination and report. Certain minor details of fees of trial justices and the like also escaped observation in the drafting of the law. This particular defect, however, was remedied by a short statute (chapter 235) passed during the session just closed. But it is wiser to wait before attempting any change until we know something more of the workings of the law as it stands, and have sufficient statistics to aid us in determining what changes are needed. It is better also to wait until a sufficient number of changes have suggested themselves as improvements, so that they may be acted upon at one time. When, therefore, the proposition was made last winter to amend the law in certain particulars, it was deemed best not to disturb it at present, but to await further results before attempting to improve upon it.

The new law has shown itself capable of producing exact, valid work, and its harmonious and successful operation cannot fail to exert a good influence on the general public respect for laws. It is yet too early for an accurate statement, but so far as has been learned it is financially a marked improvement over the old law. Whether it shall continue to prove useful depends in great part on your endeavor to make it so. And, no doubt, it will so continue; no doubt, with increasing familiarity and experience, your work under it will prove more and more important, and will more and more illustrate its capacity efficiently and worthily to support its part in the administration of the criminal law.

CASES OF OVARIOTOMY.

BY JOHN HOMANS, M. D.

CASE VII. *Multilocular Cyst of the Left Ovary; Antiseptic Ovariectomy; Recovery.* — Miss K. B., aged twenty years, was seen by me in consultation with Dr. C. C. Holmes, of Milton, December 11, 1877. At that time her umbilical girth was thirty-three and a half inches, temperature 100.6° F., pulse 132, of fair strength, and her general condition encouraging for operation. Dyspnoea and general discomfort had induced Dr. Holmes to tap the cyst on December 5th, when twenty pints of clear yellow fluid were removed. Her health first began to fail in March, nine months before I saw her. On March 19, 1878, twenty-eight pounds of brownish-colored fluid were removed by aspiration, and soon after this the patient decided to have the tumor removed. This was done at the Carney Hospital on March 30th under carbolic acid spray. The incision was five inches long, and subsequently was somewhat enlarged; there was a slight amount of ascitic fluid; the adhesions were strong, quite vascular, and almost universal throughout the anterior and lateral portions of the cyst wall, and to the diaphragm on the left side they were particularly intimate and difficult to separate. Many of the bands of adhesion were tied in two places with silk or catgut, and divided between the knots; others were cut through with saw-toothed scissors, and many were ruptured by manual force. A small laceration of the surface of the uterus, which bled freely, was sewed up with carbolized catgut. The pedicle was first compressed with Dawson's clamp, then tied in two halves with carbolized catgut, cut off, and dropped back. This method I have adopted in my last two successful cases, and am very well satisfied with the results. The cyst was extremely multilocular, and the inner cysts were broken down with considerable difficulty. The contents of one of them was shreddy-looking (very likely this was the large cyst aspirated about two weeks before). The cavity of the abdomen was thoroughly sponged out, and the inner surface of the peritonæum was left red and shaggy-looking. Seven deep and three superficial carbolized silk sutures closed the wound.¹ The patient rallied well from the operation. The pulse rose to 140 on the morning after the operation, and fell to 100 on the third day; the temperature rose gradually to 103.2° on the second day, and was normal on the fifth; the urine was passed voluntarily throughout the period of recovery; at first micturition was frequent (once an hour); flatus passed per anum on the third day; small doses of opiates and stimulants were occasionally required; the stitches were all removed on the seventh day, and the wound found to be healed throughout without suppuration. The bowels moved naturally on the eighth day; patient sat up on

¹ The cyst and its contents weighed thirty pounds.

the fifteenth day, was out of doors on the eighteenth, and returned home, driving seven miles in a carriage, on the twenty-eighth day. The catamenia appeared in May, and have recurred regularly since. She is now (July 22, 1878) well and strong.

A CASE OF SUB-MUCOUS UTERINE FIBROID TREATED BY ELECTROLYSIS.¹

BY GEORGE HOLMES BIXBY, M. D.,

Surgeon to St. Elizabeth's Hospital for Women.

NOVEMBER 15, 1876, I was consulted by Mrs. S., aged forty-five, a native of Maine, but a resident of California, for an obscure abdominal tumor. Her mother died of cancer of the breast, and a sister after an operation for the removal of a fibrous tumor of the uterus which had undergone partial spontaneous enucleation. The patient was a decided blonde, above the average stature, with fair nutrition. Menstruation was established at seventeen, and continued normal. She was married at twenty-two, gave birth twice, the first time a year after marriage, the last three years later, twenty-one years ago. There were no miscarriages. Menstruation continued regularly for the next twelve years. Six years previous to consulting me, a day or two prior to a usual period, her attention was accidentally directed to a growth in the right ovarian region. The tumor slowly but steadily increased in size, but for four years the general health, as well as the menstrual function, was unaffected by its presence. During the last two years a decided influence on the catamenia has been apparent. At each period there was a marked increase in the quantity of the flow and a lengthening of the duration of the function. Lasting when she was in health from three to five days, it was now prolonged to ten, twelve, and at times fifteen days, and attended by severe expulsive pains and coagula. The past year all the above-mentioned irregularities and complications have steadily increased, together with severe gastric irritation and a condition of general depression amounting well-nigh to coma.

By palpation I found the abdomen covered by a dense layer of adipose tissue; at the right of the median line, arising from within the pelvis and extending above the umbilicus, a smooth spherical tumor the size of the foetal head, apparently without adhesions. Vaginal exploration and bimanual palpation showed a well-defined growth arising from the right and upper part of the uterus, extending downward toward the cervical portion of the organ. The sound passed nine inches. By rotating the tumor presenting above the pubes with the sound in the uterine cavity, the intimate relation of the tumor with the uterus was clearly established.

¹ Read before the Obstetrical Society of Boston, May 11, 1878.

Diagnosis : sub-mucous uterine fibroid.

Before entertaining any operative procedure, in view of the menorrhagia, I suggested a trial of ergot hypodermically administered. The lateness of the season necessitated an early return to California. I was therefore obliged to postpone the treatment for the time. The journey, undertaken the next week, was attended with great discomfort, which aggravated all the symptoms at the next menstrual term. Early in January, 1877, she wrote me a most doleful letter ; her sufferings at each menstrual period the entire winter had been so intense that life had become a burden. She had determined, therefore, as soon as the season would permit, to proceed East prepared for any operation which would offer the slightest hope of relief. A month later I saw her, three days after her arrival in Boston. The journey from her home to San Francisco, some sixty miles by stage, and the remainder of the route, requiring in all ten days of the most tedious travel, exhausted her greatly. While passing under the snow sheds, though well protected, she experienced a severe chill. I suggested giving the patient ample time to recuperate fully from the long and wearisome trip before commencing the proposed treatment. On the sixth day after her arrival marked symptoms of phlebitis appeared in the left leg. The inflammation continued with varying intensity, confining the patient to the bed for eleven weeks.

All the symptoms having then subsided, I deemed it safe to begin the ergot treatment. Accordingly, I injected into the cellular tissue in the vicinity of the abdominal portion of the tumor fifteen minims of a solution of Squibb's aqueous extract of ergot, each minim containing a grain of the drug.¹ No result followed the first application. The next night fifteen grains of the same form of ergot were employed by rectal suppository, and repeated on the following evening. Four hours after the last application the most violent uterine contractions ensued, and continued at intervals of ten or fifteen minutes for twenty-four hours. The patient became so exhausted from the wear and tear of the pains and the loss of sleep that I was forced to counteract the effects of the ergot by large doses of opium by the rectum.

At the patient's fervent solicitation this method of treatment was abandoned, for a time at least.

September 7th, the case was carefully examined under ether by Drs. Kimball, Wheeler, Chadwick, and myself. The greater facility afforded by the anæsthesia convinced us that any surgical interference was not to be thought of, Drs. Kimball and Wheeler earnestly recommending the trial of electrolysis.

September 25th, four days after the cessation of the following menstruation, without any previous preparation, the patient being profoundly

¹ As prepared for me by my druggist, Mr. Edward Kelly, of Boston.

etherized, in the presence and with the assistance of Drs. Wheeler, Webber, and Cutter the electrolysis was performed as follows: I introduced one electrode into the segment of the tumor presenting in Douglas's cul-de-sac (the needle entering three inches), the other pole being applied to the surface of the abdomen immediately above the tumor. Dr. Webber allowed the current from fifteen and later from eighteen cells of a constant battery to pass through the substance of the tumor for ten minutes. The pulse, which was seventy and full before the ether, fell to sixty at the end of five minutes, and to fifty at the close of the application. Complete recovery from anaesthesia took place five hours later, the pulse continuing slow and feeble.

September 26th, A. M. A quiet night; urine voided voluntarily; pulse 55; the abdomen somewhat tympanitic and sensitive on pressure. Brandy and water was ordered to be taken half hourly.

September 26th, P. M. Pulse 60; nourishment taken and retained.

September 27th. Reaction fully established; pulse 70; slight tenderness over the abdomen; nourishment taken freely.

From this time on there was little of interest to note from day to day, convalescence proceeding without interruption, the patient resuming her ordinary duties on the eighth day. Menstruation recurred October 25th, thirty days after the operation, with an interval of thirty-six days; was painless, free from coagula, and of five days' duration. The second menstruation appeared February 14, 1878, continued five days, was painless, and without coagula. The interval was one hundred and eleven days. The third menstruation began March 17th, with twenty-six days interval. The day previous to the event the patient spent several hours in active exercise over an intensely hot fire. The flow continued ten days, but without complication. A marked improvement, general and local, dated unquestionably from a week subsequent to the operation, and has continued without interruption.

April 16th. The patient considers herself in perfect health, walking and driving without discomfort, having added fifteen pounds to her weight. A careful examination of the tumor showed its upper margin to be two inches below the umbilicus; by actual measurement in all dimensions markedly diminished; the sound passed seven inches instead of nine before the electrolysis.

April 26th. Twenty days after the cessation of the catamenia she ventured to start for home. A note received subsequently to her arrival informs me that after quite a jar from shackling of the cars at Detroit the catamenia appeared, the interval being thirty days. She was considerably alarmed, and anticipated trouble. On the contrary, however, the function, though somewhat profuse, continued without the slightest discomfort during the rest of the journey. In her note she adds: "I have not felt a pain since I left Boston, and with the exception of slight colds I have never been in better health."

RECENT PROGRESS IN ANATOMY.

BY THOMAS DWIGHT, M. D.

Double Staining. — We have repeatedly reported new methods of coloring microscopic specimens so as to present two colors. To be of any real value it is essential that at least one of the pigments should have a special affinity for certain tissues, and that the reaction should occur with some certainty. By far the most reliable agent used in this way is picric acid, which may be trusted to attack muscular fibre wherever it finds it. Most of the others are disappointing, though they sometimes give beautiful effects. One reason, no doubt, is that few of those who experiment with them have the patience to acquire by long practice the necessary skill in their use; still it is remarkable that none seem to come up to the expectations of their discoverers. Dr. Schiefferdecker¹ reports very excellent results from the combination of eosin with one of the following dyes: dahlia, which is a bluish green aniline color, methyl violet, and aniline green. An alcoholic solution is made of the eosin, and the specimen remains in this an indefinite time. It is then washed and transferred to a one per cent. aqueous solution of one of the other colors. It soon becomes almost black, and then, having been again washed in water, it is put into alcohol. This dissolves both coloring matters, and apparently the most important part of the whole process is to take the specimen out at the right moment. It is then put into oil of cloves, which does not act on the eosin, but continues to dissolve the blue or green, so that when the specimen is transparent the oil must be thoroughly removed. Canada balsam dissolved in chloroform is used for mounting, and the slide is to be kept in the dark on account of the eosin.

Calberla² appears previously to have obtained good results in double staining by mixing an aniline color called methyl green (*vert en cristaux*) with eosin in the proportion of sixty parts of the former to one of the latter, and dissolving the whole in warm thirty per cent. alcohol. Calberla mentions also a dark blue coloring matter called indulin, which has the peculiarity of never staining the nucleus, but only the body of the cell, or more frequently the intercellular substance. We give some of his statements: the epithelium is never, but the intercellular substance is always colored; the same is true of muscular fibre and gland cells. Connective tissue becomes blue, but the nuclei are not clear. It is very good for tendons, as the cells, not being affected, appear like white stars on a blue ground. Indulin is readily soluble in warm water. Calberla recommends that the saturated solution be diluted with six

¹ Archiv für mikroskopische Anatomie, Band xv., Heft 1.

² Morphologisches Jahrbuch, Band iii., Heft 4, 1877.

volumes of water. The specimens can be mounted in either glycerine or balsam.

Weigert,¹ after enumerating the requisites of coloring agents, concerning which all are pretty well agreed, recommends a new one called Bismark brown. A concentrated solution is made by boiling the color in water or weak alcohol. After the staining the color is set by absolute alcohol. We fail to see in what it is superior to hæmatoxylin, unless perhaps in durability.

While we are on this subject we may call attention to Taffain's method, mentioned in this journal of July 25th. He mixes four parts of a saturated solution of aniline blue with one hundred of a saturated solution of picric acid. We do not understand that there is any double staining, but simply a fine green, as the result of the mixture.

The Shape of the Liver. — Professor His² has investigated the topography of the abdominal viscera by a new method, which not only shows the true shape and position of the organs, but records it. This method consists in making a series of plaster casts, one after another, as organ after organ is exposed or removed; but an essential part of the process is first to make the parts sufficiently rigid to retain their proper shape when those that support them are taken away. For this purpose the jugular and femoral veins are opened, and the body injected from the femoral artery with a solution of chromic acid of the strength of one, or half of one, per cent. This is done under moderate pressure, and continued till the skin and mucous membrane become yellow, and till the chromic acid flows from the veins instead of blood. This requires from five to ten litres (say quarts). The effect of this injection made the loose connective tissue rather cedematous, but the walls of the hollow organs, such as the stomach and intestines, became stiff. The lungs also retained their shape when laid bare, and the liver was firm. The arms and legs were cut off after injection, and the body encased in plaster. To make the body as immovable as possible, threads were drawn through the skin and left with their ends hanging out before the plaster was applied. As the illustrations show, very instructive models may be obtained in this way. The most interesting part of the paper is that relating to the liver. This organ is generally described as having a superior and an inferior surface, with a thick border behind and a thin one in front; a description which, however true of the liver as it lies on a table, distorted by its own weight and drained of its blood, is quite incorrect if applied to the liver as it is during life. Even if this point could not be demonstrated, it might be inferred, from the discrepancy between the account of the fossa of the vena cava and the position of the foramen through which

¹ Archiv für mikroskopische Anatomie, Band xv., Heft 2.

² Archiv für Anatomie und Entwicklungsgeschichte, 1878, Heft 7.

that vein enters the thorax. This foramen is by no means at the posterior border of the diaphragm, and it is evident that the vein must run forward in the upper part of its course to reach it; nevertheless the fossa or fissure for the vena cava is described as running upward and backward. Now His shows, and it seems impossible to doubt the correctness of his views, that the so-called thick posterior border of the liver really is a posterior surface of considerable extent, and that practically the whole of the lobe of Spigelius and the fossa of the vena cava are on this posterior aspect. He shows by observations on hardened and on injected livers that the flattening is due largely to the escape of the blood. Professor His then refers to the views of Vesalius, since accepted by Cruveilhier and Braune, that the liver might be considered as filling space in the abdomen much in the same way that fat and areolar tissue do in various parts of the body. Luschka does not go so far, but admits that the shape of the liver may be modified by derangements of the position of the neighboring organs. His appears to be of the latter opinion. He believes that the liver can to some extent accommodate itself to the temporary demands of other organs for more room, but he thinks that we must assume that it is of softer consistence during life than after death, and that any diminution of its size or indentation must be brought about chiefly by the expulsion of blood from its vessels. He attaches great importance, however, to the plasticity of the growing liver, which extends in whatever direction it encounters the least resistance. The appearance of aberrant gall-ducts bears witness to the way in which the liver atrophies before the advance of other organs, as, for instance, of the stomach.

The Last Spinal Nerves. — There has for a long time been much uncertainty concerning several points in the structure of the filum terminale of the spinal cord, and in regard to the significance of the nerve fibres found in it. Rauber,¹ who is, we believe, the latest writer on this subject, quotes Luschka's views of the filum, and we think this section worth translating, as it may make Rauber's discoveries more easily understood: "Luschka distinguishes in man a filum terminale externum and internum" (one being the continuation of the other). "The latter lies free in the sheath of the dura mater, and is on an average sixteen centimetres long in the adult. In its first third it contains a more or less distinct central canal lined with ciliated epithelium, and surrounded by a molecular layer containing round, pale, nucleated cells. Besides these there are nerve fibres which, in varying numbers, extend through the other two thirds. . . . The second division — the filum terminale externum — is eight centimetres long, and represents the thread-like termination of the cord. It extends from the second sacral to the second coccygeal vertebra. . . . After treatment with acetic acid we

¹ Morphologisches Jahrbuch, Band iii., Heft 4.

find invariably three or four nerve fibres, which readily become varicose and are lost in the periosteum of the dorsal side of the coccyx." There is usually but a single coccygeal nerve on each side, though many years ago Schlemm described as an anomaly the occurrence of an extra one on both sides. Several authorities have been inclined to look on the nerves contained in the filum as vaso-motor nerves for its vessels. Rauber has made a number of transverse sections of the filum, and finds that the nerve fibres in it appear to collect themselves into bundles and to form two pairs of nerves, which, though they go nowhere in particular, he believes represent two other pairs of spinal nerves; in fact, the second and third coccygeal. He believes that certain groups of nerve cells found in the filum represent the ganglia, and it must be admitted that the appearance of the cells, of which he gives drawings, favors the supposition. There would appear to be a good deal of variation in these cell groups, but that is to be expected.

(To be concluded.)

PROCEEDINGS OF THE SPRINGFIELD SOCIETY FOR MEDICAL IMPROVEMENT.

G. S. STEBBINS, M. D., SECRETARY.

FEBRUARY 5, 1878. Vice-President Sanford Lawton in the chair.

Lead Poisoning. — Dr. G. C. McClean read a valuable paper upon this subject. He premised by saying that descriptions of lead disease, more especially lead colic, were very ancient. It was written about long before Hippocrates' time, though with no clear conception as to its cause. Greek, Latin, and Arabian writers describe it, and it has received a great variety of names, from the locality of its occurrence or the class of artisans affected. The seventeenth century furnished many descriptions of lead colic, and the epidemic which called attention to it was found to be due to the use of wine adulterated with lead, so that some imperial orders were passed in regard to it.

During the eighteenth century many voluminous treatises upon the subject appeared, and a more accurate knowledge was arrived at concerning it. At present our knowledge of lead poisoning seems nearly complete, unless chemistry has something new to teach us.

The effects of lead introduced into the system were spoken of under four divisions: colic, arthralgia, paralysis, and encephalopathy.

Regarding the relative frequency of these classes of the disease, Tanquerel's analysis of 2171 cases gives colic 1217, arthralgia 755, paralysis 127, encephalopathy 72.

The ways in which lead enters the system are various, the most common being by means of its varied preparations as used in the arts. Among the other sources enumerated were sleeping in newly-painted rooms, the use of water or other fluids contained in leaden vessels or passing through lead pipes, the use of snuff or tobacco put up in lead, the medicinal use of the salts of lead,

etc. The usual array of symptoms has been produced by the use of acetate of lead in solution (eight grains to the ounce) as a collyrium. The Devonshire colic was caused by the introduction of a bit of lead into each barrel of cider for the purpose of arresting fermentation.

Of Tanquerel's 1213 cases analyzed with regard to occupation, one third were makers of white lead, one fourth were painters of buildings, and the remainder were divided among thirty-two occupations in which lead was used to a greater or less extent. Children are most frequently poisoned by the lead preparations used in coloring candy and in the painting of toys. Earthenware contains lead, and the glazing upon many utensils is produced by a preparation of this metal. Soda water has been proved by analysis to be frequently contaminated with lead. Most cosmetics and many hair dressings contain lead, and have been known to produce the characteristic symptoms.

The season of the year has a marked effect in the production of lead poisoning. Of 1217 cases, nearly one half occurred in the months of May, June, July, and August. July furnished one hundred and ninety cases, while December gave only fifty-nine. Hence the conclusion that heat is an important factor, by either favoring the dissemination or rendering the absorption of the poison more active. In respect to age, of 1217 cases the greatest number were between thirty and forty years old. Regarding sex, it has been found that with equal exposure females were less frequently affected. Constitution and temperament have appeared to have but little influence, while hard drinkers have been found to be very susceptible to lead poisoning. One attack of the disease predisposes to another, the exposure being the same; and there may be relapses with no new exposure. Animals which live or work about lead factories are subject to colic, and occasionally to the other forms of the disease.

Colic is the form of the disease most frequently met with, and therefore will receive the most attention. Certain signs appear in nearly all cases which give warning of its approach, and these have been called the primary effects. Of 1217 cases, 1185 exhibited these to a marked degree, the most frequent being the discoloration of the gums and teeth, the edges of the gums having a bluish or slate color, which gradually shades off to the natural pink. Occasionally, however, the whole mucous membrane of the mouth is slate color. The gums shrink up and denude the teeth, the retraction being generally confined to the outside, and the lower jaw is more frequently affected than the upper. Ulceration is rare. The teeth become brown, brittle, and may be lost prematurely. Analysis has proved the coloring matter of the teeth and gums to be sulphuret of lead, the hydrosulphuric acid required for its formation being supplied by the decomposition of food adhering between the teeth. This symptom may be developed in a week, or not till after years of exposure. Offensive breath and metallic taste are almost always present, though these may be produced by metals other than lead. There is always marked pallor, which sometimes amounts to what is termed lead jaundice. The whites of the eyes, and more frequently the face, turn a pale earthy yellow. This is due to the deposition of lead in the tissues from the blood, in which it circulates in solution. Emaciation is another pretty constant primary effect, and is most extreme in the face. The pulse is reduced in strength and frequency. The pain in lead colic

usually is developed very gradually. There may be simply an uneasy feeling for a long time, to which little attention is paid, but sooner or later it becomes more intense, and is often of the sharpest character. Its seat is generally in the umbilical region, though it may be in any part of the abdomen, occasionally in the thorax and genitals. The effect of pressure varies; sometimes it will cause the pain to shift its position, while in the majority of cases it affords relief. In 1217 cases 703 were relieved, in 303 there was no apparent effect, and in 211 pain was increased. The pain is always paroxysmal, the severity inconstant, usually milder and with longer remissions at night. Constipation is very general. Of the 1217 cases, 1140 were constipated, and 20 had diarrhoea. Retraction and hardness of the abdominal walls was observed in 649 cases; 445 were normal, and 123 fuller than normal. The tension is not lessened by flexion of the thigh. Painful tenesmus sometimes occurs, and the finger introduced into the rectum finds the walls approximated, and that they contract powerfully during a paroxysm of pain. The urethra also contracts strongly, and urine will not flow, nor can a catheter be readily passed during a pain. The bladder is often the seat of severe pain, and pain in the genitals is usual during the intermissions of the abdominal pain. Nausea is a pretty constant symptom, more so than vomiting, as shown by the fact that 908 of the 1217 cases were troubled with nausea. Gas is formed within the body by the action of the lead, and escapes chiefly by the mouth. Accumulating in the bowels it forms tumors. Hiccough is generally the precursor of an intense colic. The tongue is coated white or yellow, and is generally enlarged. Thirst is often great, while the appetite is very poor. Respiration suffers only as in other severe pains, and when the pain extends to the thorax a sense of suffocation is experienced. In most instances the pulse is diminished in frequency, and has a peculiar hardness, which has been compared to the sensation given to the finger by a vibrating wire. When the pulse manifests this peculiar characteristic it is a sign of convalescence. In certain cases where the abdominal walls are much retracted, the pulsations of the aorta can be seen and felt as far as the umbilicus. Muscular strength is much reduced, and nutrition greatly interfered with. Febrile movement does not exist unless by some complication. The expression of the face is much changed by the tension and retraction of the muscles. The intellect is often affected, but only transiently.

Lead is chiefly absorbed through the mucous membrane of the mouth, the alimentary canal, and the respiratory passages, while its entering through the skin has been a matter of dispute. Later authorities incline to the belief that it may, while Tanquerel, and others who made many experiments upon animals, affirm that the skin will not absorb lead if the epidermis remain intact.

Regarding treatment, the essayist enumerated several of the many methods and remedies employed, among which he mentioned hydrosulphuric and sulphuric acids, nux vomica, blood-letting, revulsion, purgatives, opium, chloroform given internally and applied to the abdomen, sulphur baths, warm baths, alum in large doses, and, seemingly the best remedy, the iodide of potassium. As a prophylactic among those constantly exposed to the dangers of lead, very dilute sulphuric acid has a great repute, and is used by the workmen in many large lead factories with apparently good results.

Arthralgia. — Lead arthralgia is described by Tanquerel as characterized by lively pain in the limbs, without redness or swelling, not following the course of the nerves; constant, but with exacerbations diminished by pressure, increased by motion; hardness, tension, and impaired mobility. It may also affect the trunk or various organs. It may occur alone or accompany colic, and is often a precursor of paralysis. Tanquerel records 755 cases, in 201 of which arthralgia existed alone. Besides the usual primary effects of lead, "numbness and lassitude of the parts to be attacked" generally appears. Pain is the chief symptom, and is generally seated among the flexor muscles and in the articulations. In three fourths of 755 cases the pain was moderate or light, and is much less apt to be violent than in colic. Arthralgia may be acute or chronic, and may coexist with other forms of disease. It has been regarded merely as a symptom of paralysis. No pathological change has been discovered other than the presence of lead in the tissues. Much the same treatment has been employed as in colic, with good results.

Lead Paralysis. — This is characterized by loss of voluntary motion, most frequently of the flexor muscles. The first descriptions of the disease are comparatively of modern date. The attacks are produced by the inhalation or swallowing of lead. Tanquerel observed the greatest number of cases in manufacturers of white lead and painters. The precursors of paralysis are lassitude, sense of weight and numbness, occasionally hyperæsthesia of the surface, and diminished motion in the part involved. Besides the general effect upon the body and functions, the affected parts show well-marked atrophy. The well-known "drop wrist" occurs when the extensors of the forearm are affected. The following are some of the means of treatment employed: sulphur baths, electricity, strychnine, iodide of potassium, friction, etc.

Encephalopathy. — This is characterized by delirium, coma, convulsions, etc., and it is the rarest form of lead disease. Tanquerel saw but 73 cases out of 2171 observed. They almost always occur among those who are exposed to a great amount of lead emanation. The duration is very variable, and it is often difficult to determine the starting point, so insidious is its approach. No line of treatment can be relied upon, and the symptoms must be met as they arise, while the prognosis must be regarded as doubtful.

In closing, the essayist enumerated the following means for the protection of workmen: ventilation, wet apartments, handling lead under water, wet sponges as respirators, masks, frequent washing the mouth, cleanliness, milk diet, sulphuric, hydrosulphuric, or nitric acid in the form of acid draughts, occasional purgation, and many other measures, all being used with certain degrees of success.

Dr. A. S. McClean reported the case of a man aged forty-one, who had been employed in a paint shop for many years. He had occasional convulsions, intense colic, drop wrist, emaciation, and all of the usual symptoms of lead poisoning. Iodide of potassium in free doses, faithfully continued, seemed to afford little relief. The bowels were moved with large doses of alum. Sulphate of morphia in one to one a half grain doses was administered hypodermically. The patient died of exhaustion, after a year's suffering.

Dr. P. LeB. Stickney reported a case of a young man employed in a brass manufactory, who manifested the characteristic symptoms of *lead* poisoning. His perspiration was found to leave a green stain upon his undergarments. The patient was in the habit of drinking large quantities of the strongest vinegar he could procure, and the doctor attributed the green color and poisoning to the action of the vinegar upon the particles of brass inhaled or adhering to the surface of the body. He treated his patient with alkalies, with very good results.

Dr. Lambert spoke of an analysis of our spring waters made some years ago by the late Dr. Tully and Professor Dana, by which it was found that the purest spring waters corroded and destroyed lead pipes to a far greater extent than the more impure waters. Dr. Lambert thought that the comparative infrequency of lead poisoning of late years was due largely to the fact that paints were so generally mixed by machinery.

Dr. Chapin referred to cases which had come under his observation of poisoning by drinking soda water which had become impregnated with the carbonate of lead by long standing, or by remaining in the fountain overnight.

Dr. Clark mentioned several cases which had been under his care. They were men employed in the chemical paint works and in the papier maché factory. In the latter, red iodide of lead is largely employed.

HAND-BOOK OF OPHTHALMOLOGY.¹

SCHWEIGGER's hand-book in the original is already extensively known and its merits recognized, as the appearance of three editions within less than five years gives evidence. A translation is to be welcomed, since it will serve to bring the book into the hands of many not familiar with German. The aim of the author, to make this a practical hand-book, has been very successfully attained. The chief characteristics of the book are its accuracy, clearness, and terseness. There is nowhere any attempt at rhetorical effect, it might almost be said nowhere any superfluity. Yet, considering the scope of the work and the relative practical importance of the subjects treated, less space might have been devoted to the ophthalmometer and to the discussion of the value of attempts to estimate the amount to which the fundus of the eye is magnified when observed by the direct method with the ophthalmoscope. This is, however, certainly no serious defect.

In this connection we may refer to the not wholly satisfactory treatment of the direct method of ophthalmoscopic examination. Not that other general hand-books are superior in this direction, but something better was to have been expected from the author of the formerly excellent *Lectures on the Use of the Ophthalmoscope*. To give for the ophthalmoscopic diagnosis of astigmatism only the oval appearance of the disk and the troublesome method of Coccia, by which a pencil is held close before the flame, and the shadow thrown from it on the fundus of the eye observed, and not to mention the far

¹ *Hand-Book of Ophthalmology*. By PROF. C. SCHWEIGGER, of the University of Berlin. Translated from the third German edition by PORTER FARLEY, M. D. Philadelphia: J. B. Lippincott & Co. 1878. 8vo, pp. 555.

simpler and more accurate means which are at hand in the observation of the retinal vessels, is something which ought not to have happened. The want of greater care in this respect may perhaps in part be explained by the fact that when the first edition was published, in 1871, the direct method had only just begun to be generally employed, and in this part of the book there had been no change in the text of the subsequent editions.

But there is very little else that merits anything but approval. The anomalies of refraction and accommodation are treated clearly and concisely, the discussion of strabismus is able and comprehensive. Schweigger is a disbeliever in the doctrine of amblyopia exanopsia, which has been almost universally held, and in this we fully agree with him. His argument against this doctrine is effective, and ought to be convincing. The prominence which is given to the teachings of pathological anatomy forms a very valuable feature of the work, and there is a marked freedom from the use of numerous synonyms, and from that minute subdivision of diseases which so often tends to the confusion instead of the improvement of a reader not thoroughly conversant with the subject.

The translation on the whole is well done. The only serious error we have noticed is on page 162, where "gebrauchsfähigkeit" is translated "vision," and "gebrauchsunfähigkeit" "defect of vision," with the result of quite distorting the author's meaning. The printer's work is very praiseworthy.

THE ADOPTION OF THE METRIC SYSTEM OF WEIGHTS AND MEASURES BY THE U. S. MARINE HOSPITAL SERVICE.¹

THERE have been many manuals of the metric system published within a few years, but none seems so fully to reach the end desired by physicians as that just issued to its officers by the United States Marine Hospital Service. Under the act of Congress of July 28, 1866, the metric system was adopted by this service for the purveying of medicines; a recent order directs all its officers to employ it for all official, medical, and pharmacal purposes, and the little manual above named furnishes all desired information regarding its practical employment.

The method of writing prescriptions in the metric system will be adopted by many of our profession, especially by those just entering the ranks. It is hardly reasonable to suppose that those long accustomed to the old method, and entirely satisfied with it, will make the change to the new; but to induce any to leave the old system the new must be presented in an attractive and tangible form. In 1876 the reviewer wrote: "To understand the metric system properly, and to use it intelligently, a person should *forget* the units of length, volume, and weight to which he has been accustomed, and should, at once and definitely, familiarize his senses with the new measures as they are brought into daily use, irrespective of the old system." The writer has all along contended that, except for the merest temporary use during a term of

¹ *The Adoption of the Metric System of Weights and Measures by the United States Marine Hospital Service.* Washington. 1878.

instruction, the method of *conversion* from one system to another is an error, and that, so long as it is continued, it tends to strengthen the bonds which hold us to the old system, and prevents a ready grasp of the new. Practically we need a dose book in the metric system, and this is just what Prof. Oscar Oldberg, acting medical purveyor, United States Marine Hospital Service, has put before the profession.

Acting on the idea that there are men in medicine who *will not* go over the ground of their earlier days and learn the doses in the metric system, Professor Oldberg has given excellent rules for converting apothecaries' weights and measures into their respective equivalents in metric terms, and also examples of prescriptions and tables of approximate equivalents from one sixty-fourth grain or minim to sixteen ounces.

We are pleased to see that the author confines his nomenclature of the system to gram and cubic centimetre,—of course with the decimals,—avoiding the terms dekagram, hektogram, etc., which are confusing, and liable to lead to error. He however retains the French method of spelling in place of that adopted by the American Metrological Society in 1877,—gramme and metre in place of gram and meter.

The best part of Professor Oldberg's book, however, we believe to be the posological table, compiled from the United States and British pharmacopœias. The list comprises more than six hundred remedies, and gives for each the minimum and maximum doses in terms of apothecaries' weight and in metric terms. For use on the table of the physician the book will be very valuable.

We feel disposed to make but one criticism of Professor Oldberg's dose list,—that is to express the wish that he had adopted the metric line instead of the point, as suggested by Dr. Bolles some time ago, and in general use in this city. The decimal line makes errors impossible.

F. H. B.

SUGGESTIONS ON MEDICAL EDUCATION.

As the season for study is rapidly approaching it may interest our readers to be informed what steps the trustees of the Johns Hopkins University are taking in the development of a question which has lately so much engaged the attention of all medical teachers in this country. During the autumn of 1877, a course of twenty lectures was delivered by Dr. J. S. Billings, U. S. A., on the History of Medicine, Medical Legislation, and Medical Education, before the university. These lectures had been prepared at the request of the trustees, and Dr. Billings had given much time and thought to the subject, a trip to Europe having been undertaken by him, we believe, for the purpose of a more thorough study of the subject. His views have been so far approved by the authorities of the university that selections have been made by them from this course, and have been circulated for the benefit of all interested in the question. He proposes in brief that the school should be so organized as not to enter into direct competition with other schools, but should supplement the work in which these are engaged, and offer such instruction as cannot be obtained elsewhere, including, of course, all requisite for a complete medical education.

Although the hospital is to be a model of its kind, it will hardly be in position to afford greater advantages than are now to be obtained in many of our large cities, and clinical instruction could not be a feature in which the school could hope to excel. On the other hand, nowhere in this country do we find encouragement given by the schools to the promotion of medical research, to the special training of teachers, to the instruction of certain specialities like state medicine, including all such branches as public hygiene, forensic medicine, registration, and vital statistics. These, then, are thought to be of great importance in forming the course of instruction. It is not intended that they should replace the ordinary studies, but should be added to them. The prime object of the school, however, should be, in Dr. Billings's opinion, to give such instruction that men when they graduate may be prepared to study for themselves the innumerable problems that remain to be solved, and that they shall also be fitted to impart their knowledge to others; in fact, that the diploma of doctor of medicine should be restored to its old meaning. This mission he thinks it is in the power of the university to fill, untrammelled as it is by customs or traditions, or by lack of means to do what is wanted.

He very properly believes that the school should devote its energies to the instruction of those who, by their previous education, are qualified to receive it. It is not surprising, therefore, that he places his standard very much higher than any adopted by our more progressive schools. He says: "I would advise that the baccalaureate degree of the university be made an indispensable prerequisite to its degree of doctor of medicine." It does not appear that the university degrees would require the amount of study prescribed for the academic course at Harvard, for instance, but in the brief sketch given the Latin, French, and German languages, natural history, botany, physical sciences, logic, mathematics, are some of the subjects mentioned.

Among the features of the medical course not already noticed is a suggestion to establish a course of study of comparative medicine, with clinical facilities afforded by a small establishment for the cure of diseased animals. The last year of the course should be spent in the wards of the hospital, and as this institution could not probably accommodate more than twenty-five students, the graduating class should be limited to that number, which is sufficiently large, probably, to cover all those who for many years would be willing to submit to the rigorous requirements of the diploma. Besides examinations held annually by the teachers in their respective departments, there should be a final examination for the degree, conducted by persons independent of the university. It is not intended by this plan to exclude all those who wish to avail themselves of certain special advantages of the school. Although a graduate of another school could not matriculate in virtue of his title of M. D., or be a candidate for the diploma, he might obtain a certificate as to what he had studied and what examinations he had passed, or perhaps a certificate that he was qualified as a practitioner. He could at any rate enjoy all the advantages of a post-graduate course.

We have thus endeavored to give a sketch of the views of an unbiased and highly intelligent student of a subject which is of the greatest import to the future of medicine in this country, and it is a pleasure to offer them to our

readers' notice, embracing as they do a plan so well matured, so comprehensive, and so far in advance of the present system that they cannot fail, whether adopted or not, to have an important bearing upon the great movement now in progress. The public will hardly be content with the abstract of these lectures now in circulation, but will demand their publication in full.

MEDICAL NOTES.

— The question of the propriety of allowing the names of respectable practitioners to appear in public print as indorsements in business circulars has been taken up sharply, and we think with justice, by the Chicago Medical Society. An optician having appended to an advertisement the names of a number of prominent medical men judiciously intermingled with the usual accompaniment of clergymen and homœopaths, the following resolutions were passed:—

(1.) *Resolved*, That the Chicago Medical Society considers this advertisement an offense to the honor and dignity of the medical profession.

(2.) *Resolved*, That the secretary be instructed to notify these physicians that their names are being used in this advertisement, and request an explanation.

There are, undoubtedly, cases where names of medical men could with propriety be appended to an advertisement, but these are rare, and the custom is one liable to great abuse.

— The *Mouvement Médical* says Professor Lister has demonstrated before the Paris Academy of Medicine that the exsanguine condition of limbs when in an upright condition is not produced by a simple mechanical, but by a reflex action, caused by muscular contraction of the arteries, which is excited by the depletion of the veins.

— Mr. Richard Davy, of Westminster Hospital, compresses the common iliac artery by introducing a straight lever of wood into the rectum. One end is applied to the artery between the lumbar bodies and psoas magnus muscle, the other protrudes as a handle. By depressing the latter, the perineal tissues acting as a fulcrum, the common and internal iliacs can be so effectually controlled that Davy believes the method easier and more reliable than compression of the aorta, and thinks that by this method the circulation is thus less disturbed. With proper care there need be no injury of the rectum.

— M. Pouchet, after extended experiments, concludes that the constituents of the blood are not altered after removal of the spleen. He states that the elements of the blood are renewed at the expense of themselves, or from elements which are normally stored up for them by the lymphatic system. Malassez and Picard assert that excision of the spleen causes a loss of blood-corpuscles and hæmoglobin.

— A movement has been set on foot in Glasgow by Dr. Duncan and others with a view of establishing a hospital on "the south side." This district contains two hundred thousand inhabitants, and is inconveniently far from existing hospitals.

BOSTON CITY HOSPITAL.

SURGICAL CASES OF DR. THORNDIKE.

[REPORTED BY S. W. FRENCH, HOUSE SURGEON.]

CASE I. *Dislocation of Semilunar Cartilage; Synovitis; Recovery.* — Patient, male, aged thirty-one, fisherman. One week before entrance, while walking, his leg suddenly bent under him, and he found he could not rise or extend his leg. The knee became swollen, painful, and tender. It was treated by a practitioner on the coast, who, after a week's trial of the usual remedies, advised his removal to the hospital, frankly acknowledging his ignorance of the case. On entering, the leg was in a semiflexed position. Knee was hot, painful, and tender, with considerable effusion into the joint. It could not be extended, but could be flexed, with pain, however. The semilunar cartilage on inner side could be felt extending out. The diagnosis of dislocation of the semilunar cartilage was made, and under ether Dr. Thorndike gave flexion and then forcible extension, turning the foot from side to side, and the cartilage snapped into place. Ham-splint applied, and leg fully extended. Patient remained in the hospital two months after this, and suffered intensely from acute synovitis. On leaving the effusion had subsided, as well as the pain and tenderness. The ham-splint he had omitted for a few hours, but it was thought better to counsel him to wear it a few weeks longer before its removal for good.

CASE II. *Recurrent Dislocation of Semilunar Cartilage; Disorganization of Knee-Joint; Amputation; Recovery.* — Patient, male, aged forty-three, ship-rigger. First had trouble in knee six years ago, when, being in the cross-trees, kneeling, he tried to rise, and could not extend the leg, and was obliged to be lowered to the deck. After a time the knee went into place, but he was laid up with a swollen, painful knee for six months. He was at work but a short time when the same accident happened to him again, and even a third time. His knee commenced to increase very much in size two years after these accidents. He had but little use of the leg. On entrance, there was a large effusion into the joint; the patella was pushed to the outside; there was thickening of the head of the tibia; when the leg was extended the foot and leg were thrown to the outside; internal ligaments relaxed; unable to walk without the knee bending under him; a floating body found in the joint. Specific history. Mitral systolic murmur. During the next three months the knee was tapped twice, fifteen ounces of fluid being drawn, and iodine was injected to no purpose. Amputation was recommended and consented to as an operation of expediency. Amputation above the condyles by Lister under ether — Cardew's method. Knee-joint found filled with pus. Cartilages on condyles of femur roughened, and in spots wanting. Bone porous and enlarged. Head of tibia enlarged and hollowed out. Synovial membrane thickened. Pieces of cartilage loosened and floating. Union for two thirds extent by first intention. Secondary hæmorrhage in five days. Lister omitted. Stump entirely healed in six weeks. Symptoms of cystitis came on in ten days. Nausea, dimness of vision, diarrhæa, diminution in the amount of urine, œdema of leg,

slight ascites followed. Albumen one fourth per cent., but the urine being highly alkaline no casts could be seen. Cedema of the lungs took place, and a steam bath being given all renal symptoms subsided. A reëxamination of the urine gave granular and hyaline casts. The stump is now entirely healed, there having been for some time two fistulous openings. Patient is improving fast. This case is interesting from its antecedent history, as being to all appearances that of a recurring dislocation of the semilunar cartilages of the knee, followed by a degeneration of the joint; the syphilitic diathesis possibly being an important factor in its advancement. In respect to the renal symptoms it might be mentioned there were none before the operation, and therefore, the attention not being called to the kidneys, an examination of the urine was carelessly omitted. The long convalescence of this case and the almost fatal result will serve as a gentle reminder always to look to the kidneys before a capital operation.

CASE III. *Compound Fracture of Inferior Maxilla; Separation of both Superior Maxillæ from their Attachments; Fracture of Right Malar Bone; Death.* — Patient was knocked down and run over by a heavily laden beer cart. Examination by Dr. Thorndike showed a fracture of the inferior maxilla at the second bicuspid on the left side, also at the angle on the right side, with considerable laceration of the soft parts; the right malar bone broken; the right superior maxilla was separated from its fellow and other attachments; the left superior maxilla was also somewhat movable; the nasal bones were crushed, and the nose turned to the left. There was a ragged wound on the right cheek extending into the mouth near the angle of the jaw. Every breath caused a puffing out of the right lower eyelid. Considerable hæmorrhage from the nose. Ether could not be given owing to the great difficulty of breathing. The fragments of the inferior maxilla were wired together, and the rest of the face moulded into place, and a broad strip of plaster was carried under the chin and over the head, which kept the jaw in good position. External wound closed by wire sutures. On the following days, the patient not being able to retain liquid in the mouth, and swallow, he was fed through an elastic catheter passed into the œsophagus through the mouth, and a mixture of egg, beef tea, milk, and brandy were pumped in with a Davidson's syringe. Nutrient enemata also were used. It would have been better to have passed the catheter through the nose, but both nostrils being plugged with clots, and the broken bones filling up the passage, it was not thought advisable to give the man so much pain, and also endanger a disturbing of the clots, and hence a recurrence of the hæmorrhage. One week after his injury he became delirious, and died twenty-four hours after his delirium commenced. No post mortem permitted.

LETTER FROM NEW YORK.

DURING the summer just drawing to a close the health of this city has been on the whole remarkably good, and the death-rate quite low for New York at this time of the year. This is, no doubt, to be attributed mainly to three things: the weather, the improved sanitary condition of the city (though there is still, alas, much to be desired in this respect), and the special efforts that

have been made by the health authorities and other agencies (and which have been more widely extended this year than ever before) to diminish the mortality from diarrhoeal diseases among the young.

At the meeting of the Board of Health, held August 20th, Dr. E. H. Janes, assistant sanitary superintendent, who had the direction of the work, presented his report of the service of the temporary visiting corps of physicians who were appointed in July. This is the third year that the experiment has been tried of employing a special body of fifty assistant sanitary inspectors to make a thorough house-to-house visitation of all the tenement districts in the city, for the purpose of looking after the health of infants and young children, and, so far as its results can be appreciated, it has been a most successful one. It is an undoubted fact that in all three summers the death-rate at the conclusion of the few weeks' service of the visiting corps has been very markedly smaller than it was at its commencement. I have not the figures for the season of 1876 at hand, but in 1877 the number of deaths of children under five years of age, reported during the week ending August 11th, showed a decrease of no less than one hundred from the week preceding, and the number reported during the week ending August 18th was still smaller. During the week ending July 21st, among children under five years of age, there were two hundred and eighty-five deaths from diarrhoeal diseases, but after that time there was a continued diminution until the week ending August 18th, when the reported mortality among the same class of children and from the same class of diseases was one hundred and sixty-eight. This diminished death-rate occurred notwithstanding the fact that the weather was considerably hotter after the work among the children was commenced than it had been before. During the week ending August 18th the physicians were discharged, and in the week following the number of deaths in the city began to increase again, running up to five hundred and ninety-six (an increase of forty-three over that of the preceding week). During the week ending September 1st the mortality was further increased to six hundred and forty-four.

Perhaps two or three brief extracts from Dr. Janes's report of last year may be of interest here: "In the capacity of sanitary missionaries the corps of extra inspectors visited from July 18th to August 14th, inclusive, 23,566 houses, and 131,573 families, treated 4719 cases of disease, and distributed 5128 excursion tickets for the Floating Hospital of St. John's Guild. As these appointments were not all made on the same day, the average number of days occupied in the service was twenty-seven, making an average of about ninety-four visits per day for each visitor. The greater portion of sickness, of course, was found in the crowded tenements of the most thickly populated wards, — a condition inseparable from this class of dwellings as at present occupied; for wherever there is density of population, there is a proportionate amount of sickness, not only from the fact of there being large numbers of people within a given area, but overcrowding almost always implies poverty, want of proper food, neglect of cleanliness, increased amount of refuse, imperfect removal of excreta, and various other conditions, the effect of which is to poison the atmosphere and contribute largely to infant mortality.

"This system of house-to-house visitation is undoubtedly attended with many

advantages to the poor. Depending on the various dispensaries for medical relief, either delicacy or indifference frequently induces them to neglect sending for a physician until disease is too far advanced to admit of further delay, and when at last application is made for medical relief, it may be at a late hour, when the dispensary is closed for the day, and another night must pass before the services of a doctor can be obtained, the disease meanwhile making progress, and the chances of recovery lessening in proportion to the delay. On the other hand, by visiting from house to house many cases of sickness are found in their incipency, and by judicious and timely treatment much suffering is prevented, and doubtless many lives saved."

In his report this year Dr. Janes says: "The term of service for which the temporary visiting corps had been employed terminated on the 9th of August, having extended over a period of five weeks (about a week longer than last year), the work summing up as follows:—

Tenement-houses visited	25,217
Families visited	152,062
Cases of sickness treated	4,821
Excursion tickets for the Floating Hospital of St. John's Guild distributed	2,968

"They also distributed a large number of circulars, printed in the English and German languages, giving plain instructions in matters pertaining to the care of children, accompanying these with all necessary explanation and advice. . . . The comparatively small number of deaths is doubtless due to the fact that most of the cases were seen early enough to prevent disease making any serious inroads into the constitution; while, on the other hand, many of those that died had been without medical treatment until found by some member of the visiting corps in the last stages of diarrhoea or cholera infantum." There can be but little question that the most important benefit resulting from such a service as this is that very many cases of diarrhoeal trouble among young children are thus detected, and put under appropriate treatment, long before the ignorant mothers would ever think of consulting a medical man. By the time that they ordinarily awake to the fact that there is any danger to their little ones, the case has most probably reached a stage where a fatal termination is almost inevitable. In many instances a little judicious advice in regard to the diet and the general management of the child is all that is necessary.

During the week ending July 27th of the present year there were 732 deaths reported in this city (258 of which were among children under five years, suffering from diarrhoeal diseases), but in the week following only 586, a decrease of 146, and a decrease of 64 as compared with the corresponding week of last year. The number of deaths which occurred during the week ending August 10th (the last week of the house-to-house visiting service) was 579, which is 109.8 below the average number of deaths of the corresponding weeks of the past five years, and represents an annual death-rate of 27.75 per one thousand living, the population estimated at 1,084,925, which is certainly a very fair showing, at this time of the year, for New York, cursed as it is with such a dense and wretched tenement population. The visiting service demonstrated very conclusively the remarkable immunity from infectious and contagious diseases, with the exception of whooping-cough, which the city at present enjoys.

In his report Dr. Janes thus alludes to the Floating Hospital: "The liberality with which excursion tickets were supplied by the managers of the Floating Hospital of St. John's Guild resulted in great benefit to the little sufferers, who for a brief time were thus enabled to enjoy the fresh air as a relief to the painful monotony of their every-day lives. It is the testimony of all who had the opportunity of witnessing the effect of these excursions upon the children, that they constitute an invaluable aid in preserving the health and strength of these little ones." One can hardly doubt that in the absence as yet of any extended means for removing the sick infants of the poor from their wretched homes for a longer period, these excursions for a few hours on salt water are of very essential service, and deserve the hearty support of the community. Owing to the difficulty of raising money this year, the trips of the Floating Hospital were not commenced until quite late, and only two are made each week, instead of three, as formerly. On each excursion from eight hundred to a thousand mothers and children are taken out, and the average cost of each is about two dollars and a half.

Among the other agencies which have been doing an excellent work for the children of the poor this summer should be mentioned the *Evening Post* and St. Mary's Free Hospital for Children. By means of their "fresh air funds" a large number of those old enough to be separated from their parents have enjoyed the benefit of a fortnight or longer in the country. That of the *Evening Post* has been under the official management of the Rev. Wm. Parsons, and he informs me that thus far he has sent 1023 children from the tenement-houses of New York to the pleasant and healthful homes of the farmers along the line of the Erie Railroad, who have most generously and hospitably opened their doors to them. One very notable feature about this admirable work is that such a great amount of good can thus be done at a very insignificant expenditure.

The only case of yellow fever as yet reported in New York has just terminated fatally at quarantine, whither the patient was conveyed a few days since. He came from New Orleans, and the disease developed during his journey to this city.

Commissioner Allan Campbell, of the Department of Public Works, has issued his report for the quarter ending June 30th, and in it are some interesting matters in regard to the water-supply of the city. While the annual inspection of the interior of the aqueduct was being made, in May, the water was shut off for seventy-six hours, during which time the reservoirs in Central Park were drawn down seven feet three inches, showing a daily consumption of eighty-five million gallons of water. With the advent of the extremely warm weather the consumption increased to ninety-eight million gallons on June 29th. The present aqueduct is now taxed to its utmost capacity to deliver sufficient water for the daily supply, and at times the consumption exceeds the quantity delivered by the aqueduct. Mr. Campbell is, therefore, of the opinion that another large aqueduct should be constructed from the Croton Basin; but in view of the enormous expenditure necessary for such a work (at least twelve million dollars), and the present deplorable financial condition of the city, he thinks it would be better to postpone this just now, and as a temporary substitute recommends the utilizing of the waters of the

Rye Ponds, near White Plains, in West Chester County. These have an area of two hundred and ten acres, and by an outlay of one million two hundred and fifty thousand dollars for building dams, etc., an additional daily supply of ten million gallons of water could be secured to the city.

On the 18th of August Dr. Benjamin R. Robson, the oldest member of the New York County Medical Society, died, in the ninety-third year of his age. He was one of the original incorporators of the society in 1806, and was also its treasurer for many years.

P. B. P.

SHORT COMMUNICATIONS.

OBITUARY.

DR. EDWARD WARREN was the youngest son of Dr. John Warren, of Revolutionary memory, and nephew of Gen. Joseph Warren, M. D., who fell in the battle of Bunker Hill, June 17, 1775. His mother was daughter of George Collins, of Newport, R. I.

Dr. Edward Warren was primarily educated in the Boston Latin School. He entered Harvard College in 1822 and graduated in 1826. He studied medicine with his brother, the late Dr. John C. Warren, graduated with high honors from the Harvard Medical School in 1829, and then finished his professional education by studying a year in Europe. Thus prepared in the highest manner for the work he had undertaken, he entered on its active sphere in Boston with an earnest love for it, and conscientiously feeling the responsibility of the work that lay before him. Here he labored diligently and successfully until 1840, when, preferring the country, he removed to Newton Lower Falls, where he practiced for about fifteen years. Afterwards he spent the remaining winters of his life in Boston.

In 1835 he married Caroline Rebecca, daughter of Prof. Henry Ware, Sen., of Cambridge, and sister of Dr. John Ware, of Boston. This happy union continued until her death, in 1869. They had no children.

He was for many years a devoted member of the Boston Natural History Society, and of the Boston Society for Medical Improvement, and a member and councilor of the Massachusetts Medical Society.

Throughout his life he was a diligent student, and he became an accomplished scholar. He was a writer of great value in the *New England Quarterly Journal of Medicine and Surgery*, *American Journal of the Medical Sciences*, and other medical journals. Among his articles were a Sketch of the Progress of the Cholera in 1852, Remarks on Stammering, After Pains succeeding Labor, Ergot, etc. Dr. Warren wrote three prize dissertations, on Scrofula, Rheumatism, and Erysipelatous Inflammation. These were published in Philadelphia in 1840. He wrote an admirable life of his father, the first Dr. Warren, and likewise the life of his brother, the late Dr. John Collins Warren. In 1855 he visited Europe and there spent a year with his wife.

He was a warm friend of humanity, and actively interested in the moral condition of the poor. He found ample, and to him very pleasant, opportunity to gratify this feeling by connecting himself with his friend, Rev. Mr. Winkley, minister at large in Boston, and became a visitor to the poor in the later winters of his life. Here he found an open field for his sympathies, and was a very acceptable friend to these people in his new and charitable calling.

In May, 1877, he had a slight paralytic attack, yet he went about and enjoyed life among his friends, and still contributed to their happiness. He continued his studies and his attentions to his farm. In May, 1878, he failed rapidly, and on the 23d closed his useful life at the age of seventy-three.

E. G.

CURARE IN HYDROPHOBIA.

MR. EDITOR,—In your interesting article of last week upon hydrophobia some general conclusions are presented upon the action of curare upon the organism. In my studies in physiology and pathology during the last few years I have often observed a varying action from the same dose of curare which did not depend upon the quality of the drug. The period of paralysis in different frogs after the same amounts of the drug varies within wide

limits, and repeated administration of the same dose of curare to the same frog on successive occasions by no means indicates the same duration or completeness of paralysis. In winter, when the circulation in the frog is considerably reduced, the period of action of the curare is somewhat prolonged.

In *cats* the action of curare is far more evanescent than in frogs. Half-grown kittens were the subject of experiment. A large dose (amount not positively determined) was absorbed from the cellular tissue, and began to demonstrate its presence in the circulation in about ten minutes. It caused great uncertainty in walking, frequent falls, and a general appearance of discomfort, but not of actual pain, which lasted about fifteen minutes and subsided quite rapidly. Repeated injections produced no further result, and the kitten recovered readily and perfectly.

The quality of the drug is subject to great variation, some specimens being almost worthless. I have obtained most satisfactory results from solutions of that solid extract which presented a brittle fracture and were of a glistening, dark-brown color. The most useful form for subcutaneous use seems to be a solution of all portions of the drug in distilled water. A sediment is deposited, which need not be disturbed in using the solution. A dose of such a solution, containing from 0.0075 to 0.01 gramme of curare, will generally prove sufficient for an ordinary speckled frog. This is about one sixth the maximum dose given in the case of hydrophobia reported in the last JOURNAL, and the question arises, Would not the human system bear a larger amount of the drug? Its rapid elimination would seem to call for frequent repetitions of the same dose in order to insure its continued action.

Yours truly,

ALBERT N. BLODGETT.

SPLENOTOMY.

CAMP CŒUR D'ALENE, I. T., August 13, 1878.

MR. EDITOR, — In the article on Recent Progress in Surgery in your issue of June 27, 1878, page 841, under the heading of Splenotomy, the writer refers to Dr. Martin's recent case, and the reader is left under the impression that previous to this case there had been nine operations with only three recoveries. Dr. Otis, in his great work, the second surgical volume of the Medical and Surgical History of the Rebellion, page 152, has tabulated twenty-six (26) operations of splenotomy. In the twenty-six cases "partial or complete removal of the spleen was undertaken sixteen (16) times on account of traumatic lesions, ten times on account of cystic, hypertrophic, or other pathological alterations. There is the surprising result that the cases of the first group, without exception, terminated favorably. Of the pathological cases, four recovered and six died."

GEORGE M. KOBER, M. D., Act. Assist. Surgeon, U. S. A.

ARMY MEDICAL BOARD.

For the benefit of those desiring to enter the service we print below a "memorandum" issued by the War Department, containing all the information an applicant might wish to know. We understand that an army medical board will be in session in New York during the months of October and November, and that there are eleven vacancies in the corps. Young men who are qualified will find this a good opportunity, as they will secure immediate employment and appointment.

[EXTRACT FROM LAWS OF THE UNITED STATES.]

ACT OF CONGRESS, Approved JUNE 30, 1834.

"SECTION 1. *Be it enacted, etc.,* That from and after the passage of this act, no person shall receive the appointment of assistant surgeon in the army of the United States unless he shall have been examined and approved by an army medical board, to consist of not less than three surgeons or assistant surgeons, who shall be designated for that purpose by the Secretary of War, and no person shall receive the appointment of surgeon in the army of the United States unless he shall have served at least five years as an assistant surgeon, and unless, also, he shall have been examined by an army medical board constituted as aforesaid."

ACTS OF CONGRESS, *Approved* JUNE 23, 1874, and June 26, 1876.

"SECTION 4. That the medical department of the army shall hereafter consist of one surgeon-general, . . . one assistant surgeon-general, . . . one chief medical purveyor, four surgeons, with the rank, pay, and emoluments of colonels, two assistant medical purveyors, . . . eight surgeons, with the rank, pay, and emoluments of lieutenant-colonels, fifty surgeons, with the rank, pay, and emoluments of majors, one hundred and twenty-five assistant surgeons, with the rank, pay, and emoluments of lieutenants of cavalry for the first five years' service, and with the rank, pay, and emoluments of captains of cavalry after five years' service." . . .

All candidates for appointment in the medical corps must apply to the Honorable Secretary of War for an invitation to appear before the medical examining board. The application must be in the handwriting of the candidate, stating age and birthplace, and be accompanied by testimonials from professors of the college in which he graduated, or from other physicians in good repute. Candidates must be between twenty-one and twenty-eight years of age, and graduates of a medical college, having a thorough and complete course of medical education — evidence of which must be submitted to the board before examination.

The morals, habits, physical and mental qualifications, and general aptitude for the service of each candidate will be subjects for careful examination by the board, and a favorable report will not be made in any case in which there is a reasonable doubt.

The following will be the general plan of the examination : —

(I.) A short essay, either autobiographical or upon some professional subject — to be indicated by the board.

(II.) Physical examination. This will be rigid, and each candidate will, in addition, be required to certify "that he labors under no mental or physical infirmity, nor disability of any kind, which can in any way interfere with the most efficient discharge of his duty in any climate."

(III.) Oral examination on subjects of preliminary education, general literature, and general science. The candidate must satisfy the board in this examination that he possesses a thorough knowledge of the branches taught in the primary schools, and a failure to show this will end his examination.

Oral examination on scientific subjects will include chemistry and natural philosophy, and that on literary subjects will include English literature, history of the United States, and general history — ancient and modern. Candidates possessing a knowledge of the higher mathematics, the ancient and modern languages, will be examined therein, and due credit given for a proficiency in any or all of these subjects.

(IV.) Written examination on anatomy, physiology, surgery, practice of medicine and general pathology, obstetrics, and diseases of women and children. Oral examination on these subjects, and also on medical jurisprudence, materia medica, therapeutics, pharmacy, toxicology, and hygiene. Few candidates pay the attention to hygiene which it deserves : it is made an important subject in this examination.

(V.) Clinical examination, medical and surgical, at a hospital.

(VI.) Performance of surgical operations on the cadaver.

The board will deviate from this general plan whenever necessary, in such manner as they deem best to secure the interests of the service.

The board will report the merits of the candidates on the several branches of the examination, and their relative merit in the whole, according to which the approved candidates will receive appointments to existing vacancies, or to vacancies which may occur within two years thereafter.

An applicant failing one examination may be allowed a second after one year, but not a third.

No allowance will be made for the expenses of persons undergoing examination, as this is an indispensable prerequisite to appointment, but those who are approved and receive appointments will be entitled to transportation on obeying their first order.

(Signed)

GEORGE W. MCCRARY, *Secretary of War.*

WAR DEPARTMENT, *January 1, 1878.*